

REMARKS

Claims 1-46 are in this application and are presented for consideration. By this Amendment, Applicant has amended claims 1-6, 10-12, 19 and 21-45. Applicant has also added new independent claim 46.

The abstract has been objected to because the Office Action states it contains legal phraseology.

Applicant has amended the abstract as shown above to remove the terms "said" and "means". Applicant respectfully requests that the Examiner enter the abstract as now presented.

Claims 1-45 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Gehrman et al. (U.S. 5,008,992) in view of Canton (U.S. 4,829,757).

The present invention relates to a method and a device that advantageously automatically replaces spools of elastic yarn and produces a composite yarn. The present invention provides a simple and cost-effective way of replacing the spools of elastic yarn. The composite yarn comprises at least one elastic yarn covered with at least one covering yarn. A first elastic yarn is fed along with the covering yarn to a first interlacing jet. The first elastic yarn is coated with the covering yarn to form a composite yarn. The composite yarn is then wound on a developing cop. The composite yarn fed to the developing cop is stopped when delivery of the first elastic yarn is interrupted. The developing cop is then replaced with a new tube when the first elastic yarn is interrupted. An initial free end of a second elastic yarn fed from a second spool is held in an area of the interlacing jet. The first spool is automatically

replaced by the second spool when delivery of the first elastic yarn is interrupted. Once the spools have been replaced, the second elastic yarn is easily received by the first interlacing jet by releasing the initial end of the second elastic yarn. This advantageously allows the second elastic yarn to be easily inserted into the interlacing jet to resume forming the composite yarn once the elastic yarn of the first spool is finished. The composite yarn is then wound on to the new tube. The prior art as a whole fails to disclose a device or method that advantageously allows for automatically replacing spools of elastic yarn without having to stop the feed of the covering yarn.

Gehrman et al. discloses a method of producing a composite yarn. An elastic yarn component 14 is unwound overhead from a supply package 14a and an inelastic yarn component 1 is withdrawn from a package 1a. A yarn guide 27 is arranged coaxially to the supply package 14a and a yarn guide 4 is arranged coaxially to the supply package 1a. The elastic yarn component is withdrawn by a feed system 28 and then advanced to a delivery system 12. The thermoplastic yarn component one is unwound from the supply package 1a and guided through the yarn guide 4 by means of a feed system 5. The yarn component 1 then loops 360° about a draw pin 29 and is withdrawn from the draw zone by a draw roll system 30 and is advanced to the delivery system 12. Following the delivery system 12, the yarn components are brought together and guided through an air jet entangling nozzle 19 and withdrawn therefrom by a delivery roll system 31. The components are brought together only after they entered the nozzle 19. The resulting composite yarn is wound on a package 24 which is rotatably driven on its circumference by a drive role 25. Prior to being wound onto the

package 24 the composite yarn passes over an oiling roll 20 which is positioned in an oil tank 21 and then through the yarn delivery roll system 31.

Gehrmann et al. fails to teach and fails to suggest a device or method that automatically replaces spools of elastic yarn. At most Gehrmann et al. teaches a method for producing a composite yarn. Gehrmann et al. fails to solve the problem of replacing a spool of elastic yarn with another spool of elastic yarn. In the present invention an initial end of the second elastic yarn is held in an area of a first interlacing jet while the first elastic yarn is fed from the first spool to the interlacing jet. When the first spool runs out of first elastic yarn, the second elastic yarn is advantageously inserted into the interlacing jet so that the second elastic yarn can be combined with the covering yarn. This advantageously provides a quick and simple way of inserting the second elastic yarn into the interlacing jet. Gehrmann et al. fails to provide such an advantage since Gehrmann et al. does not disclose holding a second elastic yarn while the first elastic yarn is fed to a first interlacing jet. Further Gehrmann et al. fails to automatically replace spools of elastic yarn. As such Gehrmann et al. teaches a different approach and fails to suggest the advantages or features of the present invention.

Canton discloses a machine for producing a composite yarn from elastic and inelastic yarns. The machine comprises a support frame 1 for spools of respective inelastic yarns 13. The yarns 13 are passed via a yarn sensor 3 to a unit 10 for positioning the inelastic strands to be joined with the elastic strand. A joining apparatus 4 detects the presence of the inelastic strands and controls the uniform and continuous supply of inelastic strands to the joining unit. The joining unit 4 comprises support and rotation rollers 5 which cradle a bobbin 6 carrying the

elastic strand 11, a take-up unit 7 for winding the composite yarn on a spool 8, pneumatic joining assembly 9 with air jets and conditioning assembly 10. The elastic yarn 11 coming from the bobbin 6 is guided over the guide roller and through a feed means to the pneumatic joining assembly 9. The inelastic strands 13 wind about a motor driven roller 14 which has two portions 14a and 14b. The first portion 14a feeds the inelastic strands. The second portion 14b advances and maintains a stretch on the elastic strand by applying tension to the composite yarn. After passing around the motor driven roller 14 in the first portion 14a, the inelastic strands are passed around a fixed roller body 15 and then again around the portion 14a of the roller in a plurality of convolutions to accomplish the desired degree of drafting and tensioning. The inelastic strands 13 are passed through a humidifying assembly 16 to the pneumatic joining assembly 9. In the pneumatic joining assembly 9 the elastic yarn is stretched. The composite yarn which results is wound in a plurality of turns around the second portion 14b of the roller 14 and then delivered to the take-up assembly 7 to be wound on the spool 8.

Canton fails to teach and fails to provide any motivation for automatically replacing spools of elastic yarn as claimed in the present invention. At most Canton discloses an apparatus for forming a composite yarn from elastic and inelastic yarns but fails to disclose anything about replacing the spools of yarn. In contrast to Canton, the present invention takes a different approach. In the present invention, the first elastic yarn is fed to a first interlacing jet while an initial portion of the second elastic yarn is held in an area of the first interlacing jet. When the first spool finishes feeding the first elastic yarn to the first interlacing jet the second spool automatically replaces the first spool. This advantageously provides a device and method

for inexpensively and quickly replacing the spools of elastic yarn without significantly decreasing composite yarn output. Canton fails to disclose how the spools 2 are replaced and fails to address the problem of replacing a spool of elastic yarn when the feed of elastic yarn is interrupted. Further Canton fails to suggest providing an interrupting device or a retaining member as claimed in the present invention. As such the prior art as a whole takes a different approach and fails to suggest the advantages or features of the present invention. Accordingly, Applicant respectfully requests that the Examiner favorably consider claims 1 and 26 as now presented and all claims that respectively depend thereon.

Claims 1-45 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-38 of copending Application No. 10/531,157.

Applicant has attached a terminal disclaimer to overcome this provisional rejection.

Applicant has added new independent claim 46. New claim 46 provides for similar features as recited in claim 1, but in different claim language. Claim 46 highlights that the feed of the covering yarn is decreased or stopped altogether when the spools of elastic yarn are automatically replaced. Applicant respectfully requests that the Examiner favorably consider new independent claim 46 as now presented.

Favorable action on the merits is respectfully requested.

Respectfully submitted
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Attached: Terminal Disclaimer
Petition for One Month Extension of Time

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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE
IS HEREBY REQUESTED TO CHARGE SUCH FEE TO OUR DEPOSIT ACCOUNT 13-
0410.